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XXXVII. *Memoir on the Eastern Branch of the River Indus, giving an Account of the Alterations produced on it by an Earthquake, also a Theory of the formation of the Runn, and some Conjectures on the Route of ALEXANDER THE GREAT; drawn up in the years 1827-1828.—By Lieutenant ALEX^R BURNES, of the Honourable East-India Company's Military Service on the Bombay Establishment.*

PART I.

IN the north-western extremity of our Indian possessions, and under the tropic, is situated the small and sterile territory of Cutch, of importance to the government from its advanced position, but of more attraction to the student of history from its western shore being washed by the waters of the classic Indus and from its proximity to the scene of ALEXANDER's glories.* Divested, however, of these alluring enticements to enter on its history, Cutch is a country peculiarly situated. To the west it has the inconstant and ever varying Indus. To the north and east the tract called *Runn*, which is alternately a dry sandy desert and a muddy inland lake. To the south it has the Gulf of Cutch and the Indian Ocean, with waters receding yearly from its shores.

The physical geography of such a province is full of interest, for besides the alterations in its fluctuating boundaries, it has of late become subject to earthquakes, one of which has produced some unlooked-for changes in the eastern branch of the Indus, and it is particularly to detail and explain these that I have drawn up the present memoir, though it would have been an amusement to myself to embrace a more extended field of inquiry.

Cutch is at present labouring under disadvantages inflicted on it by the vindictive hatred of a jealous and cruel neighbouring government, for previous to the battle of *Jharra*,† which was fought in 1762, when the

* See note A.

† See note B.

natives made a brave stand for their independence against a Sindian invasion of eighty thousand men, the eastern branch of the Indus, commonly called *P'harrán*, emptied itself into the sea by passing the western shore of Cutch, and the country on its banks participated in the advantages which this river bestows throughout its course. Its annual inundations watered the soil and afforded the natives a plentiful supply of rice, the whole country on its banks, then known by the name of *Saira*,* being cultivated.

These blessings, which nature had bestowed on this otherwise barren region, perished with the battle of *Jharra*, for MÍR GHOLÁM SHÁH CÁLORA, irritated at the unsuccessful result of the expedition which he had led into Cutch, returned full of vengeance to Sindé, and inflicted a deep injury on a country which he had otherwise failed to humble. At the village of *Mora* he threw a mound of earth, or as it is called a *band*, across that branch of the Indus which fertilized Cutch, and by thus causing the stream which so much benefited its inhabitants, to flow into other branches of the river, and by leading it through canals to desert portions of his own dominions, he at once destroyed a large and rich tract of irrigated land, and converted a productive rice-country, which had belonged to Cutch, into a sandy desert.

This original *band* did not entirely prevent the water of the Indus reaching Cutch, but it so impeded the progress of the main stream that all agriculture depending on irrigation from it ceased. In process of time, however, this trivial remnant of former prosperity disappeared, and the TÁLPÚRS, the successors of the CÁLORAS in the government of Sindé, caused numerous other *bands* to be raised, and twenty-five years ago, ALÍ MURÁD, the present chief of the *Tharr*,† put a finishing blow to the work of ruin by throwing up the *band* at *Ali Bander*, since which time no fresh water has passed to the sea, even during the swell of the river.

The strip of land which at one time formed the *perganah* of *Saira*, on the banks of this fruitful river, has not since then yielded a blade of vegetation, and has become a part of that *Runn* on which it bordered. The channel

* *Saira* included the country between *Lacpat*, *Saira*, and *Múndán*, and extended a few miles north of *Sindrí*.

† The country north of the *Runn*, and between the Indus and *Párcar*, is so called.

of the river above *Lacpat* had nearly dried up and filled with mud, while that below the town was converted into a creek of the sea, and flooded at every tide.

The *Raos*, or *Rájdás*, of Cutch, possessed at one time military stations in three different places of *Sinde*, viz. *Baúina*, *Búlyari*, and *Raoma ca búzúr*, yet they bore submissively these indignities which I have described, as well to their own ruin as that of their subjects, and used no exertion to regain from *Sinde* what nature had bestowed on their country, or to wipe off those injuries which had been offered them, at variance, as they no doubt were, with the law of nations, ill even as it is understood in India.*

In this state of apathy and indifference, there occurred, in the month of June 1819, a severe shock of an earthquake, by which some hundreds of the inhabitants of Cutch perished, and every fortified strong-hold in the country was shaken to its foundation, and wells and rivulets without number were changed from fresh to salt water: but these were trifling incidents compared with the alterations which were brought about in the eastern branch of the *Indus* and the country bordering on it. At sunset the shock was felt at *Sindrí*, the station at which the Cutch government collected their taxes, and which is situated on the high road from Cutch to *Sinde*, and on the banks of what had been once the eastern branch of the *Indus*. The little brick fort of a hundred and fifty feet square, which had been built there for the protection of merchandize, was overwhelmed at once with a tremendous inundation of water from the ocean, which spread on all sides, and in a few hours completely flooded the country, and converted the tract, which had before been hard and dry, into an inland lake, extending for sixteen miles on each side of *Sindrí*. The houses within the walls were instantaneously filled with water and the interior of the fort became a tank, in which, eight years afterwards, I found fish; the only dry spot being where the walls had actually stood, and which continued so from the bricks having fallen on one another. Of the four towers but one now remains; the inhabitants saved themselves from destruction by ascending it, and only reached the land on the following day by boats.

But it was soon discovered that this was not the only alteration effected by this memorable convulsion of nature; as the inhabitants of *Sindrí* observed

* See note C.

at a distance of five miles northward, a mound of earth or sand in a place where previously the soil was low and level. It extended nearly east and west about sixteen miles, and passed completely over this channel of the Indus, separating, as it were for ever, the *P'harrán* river from the sea; and in fact, from this period till 1826, there was no communication between the *band* which GHOLÁM SHÁH had thrown up at *Mora*, and this natural mound which had been raised as I have described. The natives called this "*Allah-band*," or the *band* of God, in allusion to its not being, like the other dams in the Indus, the work of man.

The year 1762 had proved such a calamitous one for Cutch, and the CÁLORAS had then inflicted so deep an injury on the country, that as its inhabitants could never hope to regain those irrigated lands which they had before enjoyed, these wonderful events passed unheeded, for it had become a matter of indifference to Cutch whether the tract which had been a desert since the battle of *Jharra* continued so, or became an inland lake, as in either state it had ceased to yield those advantages to the people which they had once enjoyed. A feeble and unsuccessful attempt was made to establish the custom-house office of Cutch on the natural and newly-raised band, but to this the *Amirs* of Sindé objected, and *Sindrí* being no longer tenable, the *Ráo* withdrew his officers to Cutch.

Matters continued in this state till the month of November 1826, when information was received at *Bhúj* that the Indus had overflowed its banks higher up than Sindé, and that the immense column of water had spread over the desert, and bursting at the same time every *band* in the river, was forcing itself to the sea by the *Runn* of Cutch. In the month of March following I proceeded to investigate the truth of what I have now stated; to examine the natural mound which the earthquake had thrown up, and to trace, if possible, the causes of these constant alterations, on which it will be observed I have hazarded not a few opinions.

The distance from *Lacpat bander* to *Allah-band* is about fifty miles by water, though much less in a straight line. Opposite *Lacpat*, the river is about three hundred yards wide and two or three fathoms deep, and for twelve miles up retains all the appearance of a river, varying in breadth from a hundred to two hundred and fifty yards. At *Sando*, which is about four leagues from *Lacpat*, the waters expand into a vast inland lake, that bounds the horizon on all sides. Yet as this sheet of water is not more than four or five feet deep, it is easy to distinguish the course of the river through

it by sounding, the bed of it being in no place, except *Sando*, less than two or three fathoms deep.

The *Allah-band* being the chief object of interest, I sailed for it at once, and found that the flood, or as it is called, the *nara*, of 1826, had completely cut it through and left a channel forty yards wide and about three fathoms deep, in which the waters of the real Indus were passing to the ocean; and I could not be mistaken in this, as they were perfectly fresh and drinkable, and in such quantity that they had even affected the salt expanse as far down as *Lacpat*, where at low tides the water becomes sweetish. On *Sando* it is brackish, and at *Sindri*, five miles below *Allah-band*, as good as could be wished.

The embankment of *Allah-band* is elevated about ten feet from the level of the river, and is composed of soft clay mixed with shells, having all the appearance of being cut through at some late period, the sides being quite perpendicular. At present the channel through it is only thirty and forty yards wide, but there are marks of the current having extended during the swell two or three hundred yards westward. It will be seen, therefore, that at *Allah-band* the stream once more takes on the appearance of a river, and though narrow, is quite navigable even at this season (March); indeed I there met several boats, laden with *ghí*, which had come from *Wanga*, many miles higher up, and had so far prosecuted their voyage to Cutch, which proves, better than oral information, that every *band* in this branch of the Indus had burst. It is necessary to mention in this place that the *Allah-band* ought not to be looked upon as a narrow bar or strip of earth which had been ejected by the earthquake, for it extends very far inland, perhaps sixteen miles, and by gradually sloping towards the north, unites with the land, which renders it impossible to define its breadth with correctness.*

I shall not venture to give any further account of the river to the north, as it has not come under my personal observation. Be it sufficient to remark that the walls of *Amercót*, a fortress in the desert, have been partially thrown down by this influx of water, and some reports have gone so far as to say that the inundation spread to the *Nueyar* country, at the mouths of the *Luní*, where some of the water escaped into the *Párcar*

* See Part II.

Runn, but this I hope to determine at no distant period ; I can however conceive no improbability in such an occurrence.

Before quitting this part of my subject I must mention, that about two miles higher up than *Sando* there is a celebrated saint's place called *Ibráhim Sháh Pír*, which is held in much veneration by the sailors. It consists merely of a few bricks and bamboos with flags, but is particularly useful, as it serves to point out the entrance to another branch of the Indus, called *Mitra nár*, which is as deep as the one I have described, and which leads to a landing-place called *Dingro*, about twelve miles up, from whence goods are conveyed to *Pállia*, ten miles farther, and thence to *Hydrábád*. I met five flat-bottomed boats sailing up this branch in one morning,—a convincing proof of its utility. Below *Ibráhim Sháh Pír* is that part of the river called *Sando*, which extends up and down for a distance of two miles, commencing at two *nallás* called *Changásir*, of which notice will be hereafter taken. Previous to the earthquake, it is said that the channel at *Sando* was as deep and narrow as any part of the river, but, whether through the vast quantity of sand which that influx of water brought with it I am not prepared to state, still it is certain that there is now only a depth of two or three feet of water on it, though it has a breadth of a couple of miles.

Having thus described the appearance of the river above *Lacpat*, we shall now turn to the part lower down, between it and the sea. At *Lacpat*, in its course downwards, it runs for six miles north-west to a place called *Cótrí*, where, although there is no water for drinking, there is a halting place, and it is from hence that all merchandize from *Sinde* is shipped for *Cutch*. Eight miles westward of this lies the small fort of *Basta-band*, now in ruins, but previous to the establishment of *Cótrí*, a place of some consequence. It had become, however, a subject of dispute between *Cutch* and *Sinde*, and even of open warfare, which led to its being entirely abandoned. It is badly supplied with water, and was more inconvenient than *Cótrí*, being at a greater distance from *Cutch*. At about fifteen miles south of *Basta-band*, on the *Cutch* side, lies the harbour of *Cotasir*, which can be approached by boats of four and five hundred *candies*, or upwards of a hundred tons, and which is the most westerly point of *Cutch*.* The

* See note D.

landing-place is much exposed, and large boats cannot ascend higher up the river, so that they ship their cargoes on board small craft for *Lacpat*.

The *P'harrán* river had undergone so many alterations that it had even lost the name of the parent stream, and was known on one side of *Alí-band* by the designation of *Corí*, while it was called *P'harrán* on the other. The natives therefore, in speaking of the *Lacpat* branch of the Indus, use always the term of *Corí*, which, from what I can understand, means a creek of the sea. This creek gradually widens below *Lacpat*, and at *Cotasír* the one bank has receded from the other upwards of five miles, and forms its mouth.*

From the halting place of *Cotrí* there is a high road leading through *Pállia* and *Ghárri* to *Hydrábád*, by which route the horses† come annually from *Khórasán* and *Candahár* and are crossed in boats to *Lacpat*. For the first thirty miles the road is a salt desert, and skirts along the inland lake, which was formed by the earthquake, as may be discovered from its passing *Pállia*; and with a view of circumscribing as much as possible the limits on which I shall have to remark, I give this road as the western boundary. The eastern limit of this lake is also skirted by the high road from Cutch to *Sinde*, and which formerly led through *Sindrí*, but is now necessarily sixteen miles eastward of it. It leads from *Narra*, by *Luna*, on the *Banní* or grass lands, to *Raoma-ca-bázár*, and thus encloses an inland sea of about five or perhaps six hundred square miles.

The rivers in a country subject to periodical rains necessarily undergo many alterations, chiefly from the greater velocity and quantity of the water they contain in their channels at different seasons. This has been the case in so striking a manner with the *delta* of the Indus, that neither a harbour nor the course of any particular branch can be depended on for a longer period than a season. The eastern mouth, as I have before said, might be considered as shut against the waters of the main Indus for the last sixty-five years; and though the numerous mouths of this mighty river would seem sufficient for the egress of its waters, yet the bursting of the *bands* in the most paltry branch shew that they have still a tendency to escape by *Lacpat*; and when we look on the map, this does not appear extraordinary, for to the westward the Indus is hemmed in by the rocky

* See note E.

† See note F.

mountains of Balúchistán, while to the eastward it has a low sandy arid desert, by which its waters, when they have once overflowed their banks, would sooner reach the sea than by the regular course of the river.

The cause of the sudden overflow of the Indus is stated to have been the pressure of water on one of the banks of the river, which had been always low, and was formerly raised by artificial means, and called the *Arrore-band*, though it had actually nothing of the nature of the other *bands*, and merely served to keep the water of the main trunk of the Indus in its course to the sea. I am given to understand that this *band* is situated somewhere between that point of the river after it had received the *Panjáb* rivers, below *Uch*, and its entrance into Sind at *Bhacar*, and if I judge rightly, it is in a straight line and nearly due north of *Bhúj*, the capital of Cutch, distant about four degrees of latitude, or two hundred and forty miles. If I am correct in this surmise, it is not difficult to account for the late overflow of the river, as water which runs in a diagonal direction, such as the Indus, the course of which is about south-west, would certainly force for itself a passage due south, if the banks of the river did not completely hem it in, which does not appear to be the case. That the course of the water would always be as it has turned out, is in my mind certain, for the channel through *Allah-band* is in a straight line from *Narra* in Cutch about thirty-five miles due north, and the water which came down in 1826 overflowed opposite *Narra*, and has left pools to this day; and it will be observed that the river changes its course below *Sindri*, that is, opposite *Narra*, sweeping off to the south-west to avoid the hilly country of Cutch, and reaches the sea by the flat marshy tract west of *Lacpat*, which gives a very satisfactory reason for the water overflowing where it did. Immediately after the earthquake, too, the water extended from *Allah-band* towards *Narra* for a distance of twenty miles, and there was a water-communication the whole way for some days after; the guns of *Sindri* were even brought in boats to within two miles of *Narra*. Had this continued, it would have compensated in some degree for the loss of the direct land-route to Sind by *Sindri*, which by its shortness served to expedite the arrival of merchandize in the country, but at present it is neither navigable nor to be passed by land, from the accumulation of mud.

The floods of the Indus commence in April from the melting of the snow in the Himaláya Mountains, and the river decreases to its usual level by September. It is to be remarked, therefore, that the *Arrore-band*, which

caused the overflow, was not broken through within this period, and not for two months after the usual swell of the season had subsided ; so that if the *bands* are not again thrown up, it will have the advantage of future floods to deepen, and still further open the channel through the *Allah-band*, and may again bring back to Cutch its lost fields. I am not sufficiently aware of the breadth of the *P'harrán* river before 1819, to draw a comparison between it and the present channel through *Allah-band*, which is only one hundred and twenty feet wide, though from fifteen to eighteen feet deep.

If the influx of fresh water from the Indus, after passing over a parched and thirsty desert and entering an inland lake by so narrow a channel as that through *Allah-band*, has had such an effect as to sweeten the water above *Sindrí*, to change the whole body of it from salt to brackish, and even extend its influence so low as *Lacpat*, every hope is to be entertained that a further change will take place, for the body of salt sea-water which it passed through, extended for fifty-three miles, and it had besides to contend with tides, certainly not strong ones, but which always flow up as high as *Ibráhím Sháh Pír*, thirty miles above *Lacpat*.

I am disposed to place much reliance on succeeding inundations, and do not look upon it as improbable that the Indus itself may in the dry season once more send off its waters, as it did in 1826. The effect of a repetition of these inundations would clearly tend to deepen the channel of the *P'harrán* river, and thus, pursuing a steady onward course to the sea, it would carry along with it, in process of time, the water that has lodged about *Sindrí*, and which will of course continue as long as there is no stream passing through it, and nothing in fact to disturb it. If this result should follow, the Cutch government will be again put in possession of the *Saira*, which contributed so much to the prosperity of their ancestors. I am not inclined to despair of seeing such a change take place, and instead of looking upon the effects which the late overflow has produced as trifling and unproductive of any material alteration, it seems to me remarkable that the fresh water should have exerted such an influence, considering the field over which it spread had been under the dominion of the sea since 1819, and the enormous quantity of salt water it had to encounter.

I am willing to admit that if the *Allah-band* had never been thrown up, these prospects would have been considerably brightened ; for since 1762 the water had been gradually receding from the river, though it had not left the channel entirely dry, and till the earthquake of 1819, was navigable

only for very small boats as high up as *Sindri*. I fear therefore that the earthquake of 1819, by throwing up this natural mound, opposed a resistance to a temporary approach of the sea, which would otherwise have had egress by the old channel of the *P'harrán*, and I am inclined to believe that this sheet of water would not have lodged where it has, had it not been checked in its course, but would have in time receded to the ocean.

Besides the resistance which it met with from the *Allah-band*, the earthquake happened at the very time the south-westerly monsoon winds blow, and the body of water which had been impelled up in the first instance by the earthquake was fed, for the four months succeeding that event, by a daily supply from the sea.

The earthquake produced another alteration, which strongly corroborates the above fact, as it was discovered when the shock had passed, that the channel of the *Cori* was much deepened, which I presume the waters had effected before they overflowed their banks, or it perhaps may have occurred afterwards when they experienced the resistance which they did from *Allah-band*. That the channel is deepened there can be no doubt, for boats of fifty *candies* could only approach *Lacpat* previously, and craft of two and three hundred *candies* may be now seen daily sailing up the river. The natives, indeed, assert that this was not brought about at once, but that the river has become deeper yearly. They may be relied on, for we know that previous to the earthquake the river was fordable for cattle both at *Lacpat* and ten miles higher up, where there is now twelve and fifteen feet of water. It appears to me, that the lodgment of the water about *Sindri* had served to bring this change about by keeping up a constant communication between that lake and the sea.

In 1820, Captain D. WILSON, of the Quartermaster-General's department, visited the Indus about ten miles above *Lacpat*, and reported on a ford of the river which he himself had passed over at *Changasir*. A desire to verify the information he procured at that time, led me to the spot where he had made his observations, but I found every portion of the tract and the river itself altogether altered. The ford he had described, and to which I was led by the very guide he himself had employed, was covered with fifteen feet of water at low tide, and the river, instead of being five hundred yards wide as he had described, was only three hundred feet. At *Bitaro*, too, where he had stated it to be only thirty yards wide, I found it upwards of a hundred, and instead of a depth of four fathoms, little more

than two. Further, that officer had approached the Indus from the village of *Saira* by land, and described the route as quite passable; but in attempting it, my progress was arrested by two *nallás*, called *Cótro* and *Chitriúrí*, that I could hardly approach for clay, and the latter of which had five feet of water, so that besides the danger I incurred in passing over a tract of quick-sand, and *Runn*, which *was affected constantly by the tides*, the river was not even to be approached. I mention these facts from the strong concurrence between them and the reports of the natives, as to the deepening of the river, and the alterations which it has undergone. It is therefore quite out of the question to look any longer for this ford, and did it still exist, the nature of the country is such, that no advantage could be taken of it even for a private individual, much less for the passage of an army.*

It is to be recollected that, previous to the earthquake of 1819, the *Runn* was partially filled every season by the water being blown over it from the *Lacpat* creek, still the return of the hot weather and the north-westerly winds invariably dried it up. These causes have not of late been powerful enough to recover the tract from the sea, though it becomes much shallower after the monsoon, as well no doubt from the fair weather as the constant blowing of the north-westerly breezes, which would carry out the water. It is, perhaps, difficult to support the opinion, but I am led to infer from the above-mentioned fact, that while the *Allah-band* was raised by the earthquake, the country which surrounds *Lacpat* must have been depressed; if such be the case, the chances of the water ever being displaced are very remote, but their longer continuance in their present site seems certainly to afford a ground for belief, that there is a hollow round *Sindri*; nor must we forget that the overflow of salt water near *Sindri* was brought about by an earthquake, not from a flood of the Indus, or from rain.

The conclusion, then, must be, that until the *P'harrán* river disembogues a sufficient quantity of fresh water to dislodge the body of salt about *Sindri*, or brings down such a quantity of alluvium, as will fill up this hollow, if it do exist, there can be little prospect of the people of Cutch regaining the fertile *perganah* of *Sairá*. Allowing such a circumstance to take place, I have very many doubts if any advantage would ever be derived from such an influx of fresh water, for water, when beyond a certain

* See note G.

quantity, whether salt or fresh, is hostile to the purposes of agriculture, and there is no reason to believe that as the present tract continues flooded with salt, it should become dry with fresh water. Further, the banks of the *P'harrán*, although from the nature of the country they never could have been very high, have once been overflowed, and the winds which blow up with violence against the stream when the floods take place (which is during the rains), would always blend a quantity of salt water with it; and much more velocity would be required to force a passage through such a sheet of salt water, than can, I fear, be expected with such a narrow outlet as the flood of 1826 has cut through *Allah-band*. The velocity with which it runs is greatly diminished, immediately it passes that point, for its waters are mixed with those of the salt lake, and it requires little to impede the progress of a stream, the banks of which are for nearly twenty miles under water. The Rhone, which passes through the lake of Geneva, affords an instance similar to the eastern branch of the Indus running through the *Sindri* sheet of water, and I have been informed that the waters of the European river pursue a steady course through the Lemane lake, with which they hardly mix, as is to be discovered by looking down upon the water, the colour of that of the river and the lake being different.

While we discuss the chances against Cutch regaining its former wealth, it must be allowed that a ray of hope has now broken out where none before existed, and the present state of things may terminate greatly to its advantage. In process of time, should the channel continue deepening, the country about *Sindri* might be drained and turned to its former purpose, there being reason to believe that the present saline soil, which it has put on from being covered with salt water, would disappear when well saturated with fresh water as the fat and productive soil of *Sairá* has disappeared from the influx of salt water. The *Amirs* of *Sinde*, too, acknowledge the right of the Cutch government to a small *nallá*, called *Caira*, which is now on *Allah-band*, and this, if they choose, can give them a footing at a very important point, and put them in full possession of the grand natural *band*, by far the most formidable on the river.*

But if the country in the neighbourhood of *Sindri* has been lowered, I

* It is a singular fact, that the boat belonging to *Sindri* was lying in the *Caira-nallá* when the earthquake happened, and threw up between it and the river "the *band* of God."—The Cutch government were in the habit of collecting their revenue either at *Sindri* or at this *nallá*.

question whether the tract above *Allah-band* would not now become "the *Saira*" of this branch of the river, and to me it appeared only necessary to soak that tract with fresh water to adapt it for the purposes of cultivation, though it is to be remembered that the ground on it is quite salt, like the *Runn* in its neighbourhood.

It is a matter of doubt whether the *Amirs* of *Sinde* have it in contemplation again to throw up the *bands* in the *P'harrán* river. At present they have not commenced operations, from the dread of an inundation similar to that of November 1826, which had nearly annihilated many of the villages in their dominions. Their annual crop has, however, been increased fourfold by that overflow which irrigated parts of the country to which the water had never before extended, and the inhabitants, taking advantage of this, transplanted their rice, and reaped a plentiful harvest. The *Sindians* cannot now be supposed to be actuated by that national hatred towards *Cutch*, which characterized them in the time of the *CÁLÓRAS*, and may have no immediate inducement on that account to renew the *bands*, but it is not to be doubted that the irrigated lands in *Sinde*, bordering on the *P'harrán*, which formerly produced so plentifully, will not now yield an equal quantity without them, for however much a river running through a country may contribute to its fertilization, still it is clear that it must be more productive when that country is intersected by canals, and the water is extended by dams and other artificial means.

But the rice cultivation of *Sairá* was not the only advantage which *Cutch* derived, and will again derive, if this wished-for alteration take place, by the fresh water of the *Indus* washing its shores. The pasture of the banks enabled them to rear numerous herds of cattle, and the whole tract below *Lacpat*, which was not used for rice cultivation, was lined with their flocks and herds even to *Nárayanasír*, on the verge of the sea, and it is not more than twenty years since there were remains of the establishments of these people at *Changasír*, the ford above *Lacpat* before alluded to, for the scanty supply of water which forced itself either over or through the different *bands*, continued to raise grass for cattle, though too small in quantity to irrigate the lands for rice cultivation. The grain produced in the district of *Saira*, too, is said to have been of a very superior quality, and the inhabitants of *Cutch*, before they were confined within their present narrow limits, annually derived three successive crops from it.

In a military point of view I do not think that we have benefited by the

alterations in the river; in its present state it is ill adapted for military operations, and in my opinion renders the approach to the country of the *Amírs* more difficult to a regular army than ever, as formerly we could have transported our artillery across the *bands*, and saved the trouble and expense attendant on a large pontoon train, for the Sindians would never have been enlightened enough to throw down, of their own accord, the *bands* which had been the result of so many years' labour. Should the *P'harrán* undergo the alterations which I have before surmised, it would become useful both in a military and commercial point of view. At present this branch of the Indus is navigable for flat-bottomed boats; and were it not from the shallowness of the river at *Sando*, *dinjis*, or boats with keels, could pass up to *Allah-band*. There is reason to believe that *Sando* will deepen with the other parts of the river.

The military roads which lead into Sinde at present I have described elsewhere, but they have varied with the river, and will of course always depend upon it.* The one which leads most direct from Cutch passes from *Bhij*, by *Nerona* to *Luna* and *Raoma ca bázár*, across the *Runn*; but there is an inhospitable tract of forty-eight miles without a drop of fresh water, on leaving *Luna*, and yet the traffic across is considerable. The *Sindri* lake, in proportion as it is full, renders this route circuitous, the winds often blowing water upon it, and it is therefore subject to variation. The natives mistake these encroachments for the tide; but they are clearly in error, as with a strong wind there is always water, and at other times not a drop. I do not consider it by any means so good a route as that leading across the *Pacham* to *Bállyari*; and in invading Sinde it would always be desirable to reach the Indus as high up its *delta* as possible, as rivers will be less frequent in the march of an army, the greater distance the troops are from the sea.

The craft now used in the navigation of the *P'harrán*, or *Cori* river, consists of flat-bottomed boats, called by the natives "*dúndi*," which are square-rigged, with one mast, and from twenty to thirty *candies* burthen. They can only go before the wind; and the people have so little idea of tacking, that the boat in which I sailed was dragged down from *Allah-band* to *Lacpat* through the shallow water by manual labour, and when it

* See note H.

was found too deep, impelled on by bamboos and poles. At *Ibráhim Sháh Pír*, thirteen miles below *Sindrí*, when the bank of the river emerged from the water, the boatmen tracked the "*dúndí*" along by a rope, but the operation is both tedious and laborious, and I did not reach *Lacpat* for fifty-four hours after I had quitted *Allah-band*.

The traffic between *Sinde* and *Cutch* by the *P'harrán* has existed for so short a time, that it is difficult to say how it will turn out; but as the taxes of the *Cutch* government are collected at *Lacpat*, and are farmed out for two lacs and thirty thousand *cowries* (Rs. 6,000) annually, there is, I believe, some objection to shipping merchandize by any other channel than *Cotrí*. I met, however, as I have said, five boats in one morning passing up the "*Mitra-nár*" to *Pállia*, and fell in with others passing down the river. The sailors on board one of them told me that they had come from a place on the *Guní*, twenty-four miles beyond *Wanga*, passing through numerous *bands*, all of which they assured me were burst. There are not, however, above ten or twelve of these boats in the whole of this branch,—a very unequal supply for a military expedition.

The *Corí* produces abundance of fish, and some of them of a very choice kind. Fresh-water fish were found in great numbers after the late inundation. Porpoises are seen even above *Lacpat*. The birds which frequent it are exceedingly numerous: flamingoes, cranes, pelicans, ducks, gulls, &c., with a long list of aquatic birds, which I never before met with, and whose names I have never heard. The pelican is a favourite food with the *Lohánas*, a tribe of *Hindús*, who are a very industrious race, and make up the greatest portion of the population of *Sinde*.

Except *Lacpat*, which is quite a modern town, there is no inhabited place on the banks of the *P'harrán* below *Alí band*, and the *Sindians* have a detachment at the first village, called *Raoma ca bázár*, five miles eastward of it. *Lacpat* is a place of considerable opulence, with a population of about six thousand souls; it is two and a-half miles in circumference, and surrounded by a strong wall with bastions at intervals. Its position is its greatest advantage, and the ruins of a very ancient city, called *Whágam Chaora-ca-gad*, proves that the former rulers of the country were not ignorant of this.* The inhabitants of *Lacpat* are principally merchants, for the

* See note J.

country is so complete a desert, that with the exception of a few gardens under its walls, there is no agriculture within four miles of the town.

The classic name of Indus sounds pleasing to the ear, but no beauty must be looked for in its eastern branch; as far as I have described, it runs through a dreary desert where there is not a single object to relieve the eye. From *Sindri* the hills of the *Pacham* are a little elevated above the horizon to the eastward; those of *Narrá*, in Cutch, may also be distinguished; and in a clear day, even *Lacpat* is visible. I have nowhere entered into a proof of the *Corí* having been at a former period the eastern mouth of the Indus, as it is a fact which has never been doubted, and is notorious in the history of the country. I cannot, however, conclude without mentioning the difficulties I have had to encounter in drawing up even this short memoir, from the singularly vague and unheard-of names which make their appearance in our best maps. I have inquired in vain for the branch of the Indus called *Luní*, and have not fallen in with a native who knew any of the branches of the river by that name. It is always applied to the river which flows through the *Júdpúr* territory, from *Ajmír* to the head of the *Párcar Runn*. The *Guní*, however, is known to them, and the *P'harrán* is said to be an offset from it. The name of *Luní* must have crept into our maps from a belief that the river which I have above alluded to, flowed into the sea by *Lacpat*,* or perhaps the *Corí* may have acquired the name from its vicinity to *Luna* on the *Banní* or grass lands north of Cutch.

PART II.

THE subject of the preceding Memoir had engaged much of my attention for some months subsequent to my visiting the Indus in March 1827, and I was naturally desirous of ascertaining whether or not the surmises which I had then thrown out were likely to be realized, or prove in any degree just. In August 1828, therefore, I prepared for a second visit to the

* See Memoir, Part II.

river, selecting that month because the floods in the Indus would have properly set in before I arrived, and the opportunity, on that account, would be very favourable for its examination. In the intermediate time, too, between March 1827 and August 1828, I had visited the whole northern frontier of the Bombay Presidency, from *Lacpat* to the mountain of *Abú*, and had minutely examined all the islands on the *Runn*, and the *Runn* itself at every point, as well on the borders of Guzerát as at *Párcar*, it appearing to me that it would be necessary to bring that singular tract of country clearly under review to comprehend fully the alterations which the Indus had undergone. The following sheets, therefore, will be found to contain a theory on the formation, filling, &c. of the *Runn*, with many novel opinions concerning it, which I have no where met with, and which are nevertheless founded upon those facts only which have come under my personal observation.

I sailed from *Lacpat* to *Allah-band* on the 9th of August, which, as may be remarked, is about the period when the south-westerly winds blow with the greatest violence, and I was, therefore, prepared to meet a greater body of water, and found the inland lake, before described, deeper by two feet, and the river increased in proportion. The channel through the *Allah-band* I found to be wider, with more of the west side washed away, and changed from a sloping declivity to a perpendicular bank, like the eastern shore. I sailed two miles up the river or channel which the flood of 1826 cut through *Allah-band*, and found the water gradually to decrease from two and a-half fathoms to as many feet, which I was informed was its depth as high up as *Chatítar*, above *Ali band*, and about twenty miles distant, where the water comes from the *Gúní* river, and to which the flat-bottomed boats could still ascend. This proved, at all events, that the *bands* have not been again thrown up in the *P'harrán* river, though I could glean no more positive information on this head than I have already given.

The grand embankment called *Arrore*, the bursting of which produced the changes before described, has been renewed, which will fully account for the decrease of water from the channel of the river between *Allah-band* and *Chatítar*. The greater distance which I ascended the river gave me a clearer view of the effects of the inundation of 1826; the banks of the channel which it cut through are of clay, and as they are perpendicular, and the river comes directly from the north, without any windings, I can

compare it to nothing so correctly as a canal, nor does its breadth, when a little way up, destroy the resemblance, being only sixty-six feet. I might have extended my journey higher up than I did, but after reaching the shallow water, and falling in with a boat belonging to the first Sindian village, *Raoma ca bázár*, I judged it more prudent to say for myself *non amplius ibis* than to encounter any of the subjects of the *Amírs*, I therefore retraced my steps by land to *Allah-band*.

The natural *band*, so called, is certainly the most singular effect of the earthquake of 1819. To the eye it does not appear more elevated in one place than another, and being covered with a saline soil, has the appearance of the *Runn* on all parts. I have been credibly informed that it extends much farther than I before stated, and that it can be traced eastward towards the *Pacham* island, a distance of twenty-four miles; westward as far as *Ghúrí*, a distance of eighteen miles, which would make its whole length upwards of fifty miles. That there must be some foundation for the extent of it eastward is clear; for there is an elevated mound, about a mile broad, on the road from *Luna* to *Raoma ca bázár*, sixteen miles south of that place, in the middle of the *Runn*, which is made the halting ground in wet weather, and which was not there prior to the earthquake of 1819. The elevation of *Allah-band* prevents rain-water settling on it and I am more inclined than ever to view it as a tract which might be very easily brought under cultivation. A little to the eastward of the mouth at *Allah-band*, I observed the remains of a *band* which had been thrown up by FATEH MUHAMMED, to prevent the water of the *Cáira-nallú* flooding the road between Cutch and Sindé,—one of the many memorials of that public-spirited and enterprising chief. It is, of course, now useless, for the road is not open during the monsoon between the two countries.

The grand alteration which had taken place in this variable country was the entire change of the sheet of water above *Sindri* from fresh to salt. The charm which had drawn me here had therefore vanished, and the prospect of Cutch regaining once more the fertile *parganah* of *Saira* seemed more distant than ever; every thing, in fact, save the channel through *Allah-band* had reverted to the state it was in before the inundation of 1826, and the greater body of water, and its agitation by the winds, gave the whole the appearance of a great inland sea, bounding the horizon on all sides. The decayed tamarisk, and other stunted bushes, which for-

merly protruded their withered tops, and which had grown up in this land since it became one of desolation, had disappeared under the waves, and the sailors did not, as before, follow the windings of this once-fruitful river, but bent their course by the nearest line to their destination. The channel through *Allah-band*, however, did contain fresh water, which was, of course, the water of the Indus, and when the north-westerly winds set in, this may again make a slight impression on the *Sindri* lake, but never such a one as was brought about by the inundation of 1826.

The traffic between *Lacpat* and *Pállia*, as well as *Allah-band*, had not been discontinued, though necessarily less than last year, when the greater extent of navigable tract gave speculation a greater scope. I learnt that there were upwards of a dozen flat-bottomed boats belonging to *Raoma*, and also that the *Mitra-nár* or channel has been lately preferred, during the monsoon, for sending merchandize to *Sinde*, it being a better route than that by *Cotrí* to *Lah*, where, from the prevalence of mud, the camels slip, injure the goods, and are besides rendered useless ever after.* I ascertained from eye-witnesses, that even so late as January 1827 boats plied with merchandize from *Lacpat* as high up the river as *Amercote*,—a fact of which, on my first visit, I had many doubts.† *Amercote* has never been visited, I believe, by any European; the natives describe it as a small brick fort, with walls as low as *Lacpat*, sixty or seventy miles above *Raomā ca bázár*, and fourteen days' sail from *Lacpat*.‡ It is situated two *cós* eastward of a branch of the Indus called *Acra nallú* (*Nallá Sanchrú?*), which is only filled during the floods of the river, so that I should infer the influx of water, in this branch of the Indus, to be chiefly from the arm that leaves the parent stream above *Bhacar*, and which separates *Sinde* from the desert extending to *Ajmír*.

The shallow part of the river is still without alteration, and it has struck me, that its continuation in this state proves forcibly that the ground about *Sindri* has been lowered; for, on the northern extremity, there is the high land of *Allah-band*, and on the southern, the shallow part of the river or

* See note K.

† I have just ascertained that this passage was open in May 1829, and that boats had passed from *Amercote* to *Lacpat*.

‡ See note L.

Sando. I was amused at an opinion which the natives entertain of the water collected below *Allah-band*, that it is too salt for fish, and more briny than the waters of *Simunder* or “the great ocean.” This is singular enough; but I am disposed to believe it, for they attribute it to the excessively salt soil of the *Runn*, on which this sheet of water lies; it is certain, that fish are not found in abundance, if at all, in the lake, though they frequent the river.

It really appears a most monstrous and short-sighted policy which leads the people of one nation to despoil another of such a length of inland navigation as this. Had Cutch possessed a prince of some patriotism when the first blow was struck in 1762, it would not have been suffering the disadvantages under which it now labours, and I can only account for an energetic reign, like that of *FAT’H MUHAMMED* (which commenced thirty years after *GHOLAM SHAH’s band* was thrown up) passing away without any exertion on his part to accomplish so desirable an object, from an anxiety to consolidate his usurped authority at home, and consequent dread of engaging in any enterprise which might lead his troops to too great a distance from Cutch.

The Runn.

But to the facts which I have collected relative to the *Runn* and the elucidation of that singular tract. In length, the *Runn* extends from the Indus to the western confines of Gujarát for a distance of full two hundred miles. In breadth, from the islands, it is about thirty-five miles, and taking into consideration its different belts, &c., it is by no means overrated at the enormous space of seven thousand square miles. The whole tract may be truly said to be a “*terra hospitibus ferox*.” Fresh water is never to be had any where but on its islands, and there it is scarce; it is without herbage on all parts, and vegetable life is only discernible in the shape of a tamarisk bush, which thrives by its suction of the rain water that falls near it. It is, I believe, a space without a counterpart on the globe; differing as widely from what is termed the sandy desert as it differs from the cultivated plain; neither does it resemble the *steppes* of Russia, but may justly be considered of a nature peculiar to itself. No where is that singular phenomenon the *mirage* or *siráb* of the desert, or, as the natives most aptly term it, *dukhán* (smoke or vapour), seen to greater advantage than on the *Runn*. The smallest

shrubs on it have at a distance the appearance of a forest ; and, on a nearer approach, assume sometimes that of ships in full sail, at others that of breakers on a rock. In one instance, I observed a cluster of bushes, which looked like a pier with tall-masted vessels lying close up to it, and on approaching, not a bank was near the shrubs to account for the deception. From it, too, the hills of Cutch seem more lofty, and to have merged into the clouds, their bases being obscured by vapour. The wild ass, or *khar gadá*, is the only inhabitant of this desolate region. These animals roam about in flocks, as the Scripture says, "scorning the multitude of the city, and make the wilderness and barren lands their dwellings." They are not much larger than the common ass, but at a short distance they sometimes appear as large as elephants, from the deception of vision. As long as the sun shines the whole surrounding space of the *Runn* resembles a vast expanse of water, the appearance it commonly assumes, and which is only to be distinguished from real water by those who are long habituated to such optical delusions. When the sun is not shining the *Runn* appears higher at a distance, but this has been remarked of the sea and other extensive sheets of water, and is of course to be accounted for on the same principle. The natives of Cutch, Muhammedans as well as Hindús, believe this *Runn* formerly to have been a sea, and have a tradition, which is in the mouth of every one, that a Hindú saint, named DHÚRAMANÁT'HA, a *Jogi* * of *Denodar*, underwent penance (*tapasyá*), by standing on his head with *supúra* leaves under it, on the top of *Denodar* hill (which overlooks the *Runn*) for a period of twelve years. At that time he resumed his proper position, and God became visible to him, when a convulsion of nature took place, and the hill on which he stood split in two, the sea that lay northward of him (which is the present *Runn*) dried up, and the ships which then navigated it were wrecked and its harbours destroyed, with other miraculous and wonderful events. There is no race of people who have such recourse to supernatural agency in their history as the natives of India ; and to those who have been accustomed to inquire into it, the above tale will appear but a graft of one of their numerous versions of some real event which has at one time or other actually happened in the country, and which has travelled down to

* See note M.

posterity in its present shape. Considering the frequent occurrence of earthquakes in Cutch, and the volcanic appearance of many of its hills, it does not seem otherwise than reasonable to have recourse to one of these concussions of nature to account for the foundation of such a tradition, and though it would be difficult to determine the precise period when it occurred, I do not despair of being able to prove from the present state of the country, that such an event did take place at some time or other.

I conceive the *Runn* between Cutch and Sindé to have been once very different from its present state, and my object will be to prove the two following propositions:—

First, That Cutch has in all probability been separated from Sindé by an influx of the sea caused by an earthquake, and that the *Runn* which now intervenes between the countries has been, *without doubt*, at some time or other an inland navigable sea.

Second, That the present state of the *Runn*, which is neither that of a navigable sea, or one at all, has been brought about by a chain of causes quite in accordance with the laws of nature.

A reference to the map of the *Runn** and its banks, illustrates the shape of this tract, and is compiled from survey and personal observation. The peculiar conformation of the north-eastern part of Cutch at *Bhailá* should be observed. It will be seen that it extends itself till it terminates abruptly in a chain of hills overhanging the *Runn*, and which attain in some places a perpendicular height of nearly three hundred feet. The islands of *Carír* and *Pacham* on the *Runn* lie due west of this range, and are not only composed of the same sort of iron-stone as these hills, but have similar ranges running through their northern extremities which terminate also, particularly *Carír*, in an abrupt and bluff outline towards the north, the *Runn* approaching close under them. *Carír* is separated from Cutch by a belt of *Runn* about five miles broad, and that island again from the *Pacham* by another belt of sixteen miles, and of all other places of the *Runn* these two are most frequently under water. These circumstances, therefore, with the lineal position of the hills, afford considerable proof that these three could have been but one range of hills, and

* It has not been considered necessary to annex this Map, since it will be shortly published by Mr. JOHN ARROWSMITH, in his new Atlas, under Lieut. BURNES's directions.

that, by whatever agency separated, water must have had great effect in accomplishing the change, since the northern sides of all, which is the direction in which the body of water would come, present precipitous head-lands such as fringe the borders of oceans, and great collections of water.

To the westward of the *Pacham* there are a few other islets on the *Runn*, but they are low and sandy, without any such indications as those above described, and have something the appearance of sand-banks. To the south of the *Pacham* island there is a tract of grass land, called *Banní*, of a greater elevation than the *Runn*, and producing abundance of pasture, but not sufficiently elevated to yield grain, and of which more will be said hereafter; it is necessary to mention it here as a connecting link between the *Runn* islands and the main land of Cutch. This tract does not extend so far eastward as *Carír*; but south of that island there are innumerable small islets in the *Runn*, the largest of which is *Gangta*, about eight or ten miles in circumference, and on all of which there are rocky hills or elevated plains, or, if the surface of any of them be flat, it is invariably found to be hard and stony, and impregnated with iron, like those on the greater islands. Here again is another connecting link which would join *Carír* to that part of Cutch called *Wágar*; and it is surely not too much, after these facts, to suppose that Cutch, and the islands north of it, were once joined together.

Again, the district of *Párcar*, which lies nearly due north of the *Bhailá* range of hills above-mentioned, is distinguished from the neighbouring countries by extending farther into the *Runn*, and making greater approaches to Cutch. These hills are separated by a low tract of *Runn*, upwards of thirty miles in breadth, without a tree or bush intervening, so that they are distinctly visible from one another in a clear day, and it was on contemplating them that I first formed the opinion of Sinde and Cutch having been united. *Párcar* is a very disturbed state, and I have been prevented on that account from visiting it, and specimens of its hills would be little satisfactory. Nor am I able to say much of the country, called *Tharr*, lying between *Párcar* and the Indus. I have visited *Bállyarí*, and found the country one succession of low sand-hills, which I am told is the general feature throughout, and I do not conceive therefore that because there is no counterpart to the hills of *Pacham* and *Carír* on the Sinde side, it in any way affects the belief that the countries were united, as it is more

than probable that the tract which did intervene was low, and not unlike the *Tharr* itself. *Párcar* too, I learn, is peninsulated, which may be accounted for by the force of the waters that overflowed the *Runn* at some period being checked in their progress by its hills. I am inclined, therefore, to believe that the *Runn* of Cutch was formed by an influx of water which disunited the hills of *Bhailá* and *Párcar*, consequent on an earthquake.

But to complete the proof on this head, I take it for granted, that Cutch has been at one time or other united to Sind. Such being the case, the Indus would flow, as it now does, on the western side between it and Sind proper, and the river *Bannáss* between it and Guzerat, and which would leave no doubt that the waters of the latter river escaped to the head of the gulf of Cutch in a prolongation of their present course. But besides these two rivers, we have the *Luní* river flowing from the mountains of *Ajmír* into the north-eastern corner of the *Runn* at *Párcar*, and it is doubtful what course its waters would pursue, after reaching so low as the island in the *Runn*, called *Narrá báte*. I am inclined to believe that their more probable course would be towards the Indus, across the present *Runn*, in a direction nearly parallel to that great river, and with which the *Párcar* hills may have prevented it from effecting a junction higher up, so that they would enter the sea by *Lacpat*, and not along with the waters of the *Bannáss*, by the head of the Gulph of Cutch. Some of our maps have given a dotted line, representing the course of the *Luní* river, as I have now stated, but it must be purely supposition, as there is no channel now discoverable any where throughout it, and I speak from personal observation. That distinguished geographer, Major RENNELL, was greatly puzzled in his memoir to assign a proper course to this river, which he calls the *Paddár* and *Cággár*, names now unknown, and after saying that it is possible these rivers may discharge themselves into the sea by one or more openings through Cutch, he surmises that they may be lost in the sand. This country was quite unknown when RENNELL wrote, and I believe I am the first European who ever crossed the grand *Runn* to *Bályarí*. In this journey, which was performed in February 1827, I had ocular demonstration of the humidity of a part of the intervening *Runn*, which the natives informed me was caused by a quantity of water that had been blown from the vicinity of *Párcar*,—a corroborative fact that the course of the *Luní* river was, in all probability, as I have assigned it.

Water, it is known, forces itself easily into a tract where there is a channel for it to run, and having established the course of these three rivers, we can believe that as a greater column of rain-water flowing down them would widen the channel, so would a greater influx of sea-water forcing itself up them, readily overflow the low tract which bordered on them. The junction of such a body of water from the east and the west, or from the *Indus* and *Luní* on one side, and *Bannáss* on the other, would speedily form an inland lake or sea, such as the present *Runn* has, in my opinion, been. But the earthquake of 1819 was attended with circumstances, which would supersede the necessity of making these rivers overflow their banks. It made numerous fissures in the *Runn* in different places, and I have it from the most undoubted authority of eye-witnesses, that immense quantities of black muddy water were ejected from these openings for a period of three days, that the water bubbled out of the wells of the *Banní*, till it overwhelmed the country in some places with six, seven, and even ten feet of water, and that the shepherds with difficulty saved themselves and their flocks. If in our own times such an extraordinary increase of water has taken place on the *Runn*, it renders my view of the subject, as being only a recurrence of former events not very improbable.

The natives, however, carry their traditions of the *Runn* having been navigable into greater minuteness than a vague account of ships having navigated it, and point out to this day the positions of the different harbours on its banks. *Neroná*, a village twenty miles N.N.W. of *Bhúj*, and near the *Runn*, is said to have been a sea-port. In the poesy of the country it is described in these words—" *Neroná naggártir, jadhí Gúntrí Chitráno*," or, in other words, that *Neroná* was a town and a sea-port (*tir*) when *Gúntrí*, the ancient capital of Cutch, flourished in the *Chitráno*, an inland district so called.* At *Chárí*, a small village ten miles distant from *Gúntrí*, and situated on a river, there are traditions also of a harbour. The *Pacham* people have similar traditions of like places, and of boats being wrecked on the hills of that island; also that there was a considerable harbour near them, called *Dórat Doh* or *Dóht*, the site of which I have ascertained to be on the northern side of the *Banní*, westward of *Caorá*, and not far from a place

* See note N.

called *Phángwarró*, which is also believed to have been a sea-port. *Bitáro*, a small place on the high road to *Sinde*, between *Luna* and *Raoma ca bázár*, was likewise one; but there is no end to the list. The traditions too, are equally strong, of their existence on the *Sinde* side. *Bállyári* and *Vingar* are named, and also a ruined city, called *Vigo-gad*, about eight miles from the *Indus*, which is said to have been the principal sea-port, and as large a place as *Bhúj*. This sea was called by the natives "*Kiln*," a name from which I can draw no inference, but I should imagine it is impossible for any one to discredit the testimony of a whole body of people, who, without communication with each other, informed me of these traditions at different periods.

But if what is stated above be only sufficient to shew that the *Runn* has been under water, I have other facts to prove it navigable. During the time that the water was ejected by the earthquake, numerous pieces of iron and ship-nails were thrown up at *Phángwarró*, the port before mentioned; and similar pieces have been since found in the same neighbourhood on digging tanks. Since 1819, the natives frequently fall in with them; and as those who had seen them assured me they were not implements of agriculture, but clearly the iron used in boats, and found only near the *Runn*, more incontrovertible proof could hardly be wished for on any subject. Nor do I give this important fact from report, for I had it from respectable men at *Narrá*, who were eye-witnesses, and who also assured me that they had never discovered any thing of the kind before the earthquake, which shews how much the earth must have been disturbed.

Moreover, the whole northern face of *Cutch*, from *Lacpat* to *Bhailá*, with the exception of a few miles here and there, presents either a rocky or elevated bank, much of the same description as that of *Cartr* before given, though lower. Between *Narrá* and *Lacpat*, in particular, the rocks terminate abruptly, and do in reality form what would be called bays, cliffs, headlands, &c., if the water washed under them; and which, I presume, indicate the extent to which the water approached when the tract was first overflowed. Where the immediate vicinity of the *Runn* is not of this description, there are hills not far inland, and where there are not, the *Runn* stretches in, exactly as water would do when not resisted. In *Wágar* the northern promontory of hills, which lies opposite *Párcar*, has been almost cut off from the main land by the absence of hills, and a belt of

Runn passes nearly across from *Játtawárra* to *Fatihgad*; indeed, I question if at some period this may not have been detached altogether from *Wágar*, and rejoined by a decrease or recession of the water. Its present position is almost that of an island, and I cannot help thinking that this goes very far to elucidate the causes which may have detached Cutch from *Sinde*, and that the tract which lay once between these countries was of this description, low, and without hills. Wherever there is an island or piece of dry land in the *Runn*, it is invariably rocky and hilly: now these are precisely the parts which it would be most difficult to have swept away, and which consequently remain, as, I believe, memorials of a once more hospitable region than that by which they are now environed.

Between *Gujárat* and Cutch the *Runn* is very narrow. At *Addisr* it is only a mile and a-half broad, and at *Vowá*, where the coast is more depressed than at that place, it is but eight miles wide. This channel, however, cannot be said to separate the one country from the other, as the island of *Chorár* intervenes. This is a low tract of land, with but few rising grounds, and on which there are now many villages; it has no doubt been under water, and involved in the same catastrophe as the *Runn* at a former period. This is proved by a deposit of shells and marine matter found on the northern side of the island, and which is called by Europeans *Ducarwárra* marble. I understand it is a carbonate of lime, with other substances mixed; it has a red and yellow petrified appearance, and is susceptible of a tolerably good polish.

In fact, as both the grand openings into the *Runn* from the Gulf of Cutch and eastern mouth of the *Indus* give access to the sea-water at the present day, during the south-westerly winds, and as the bodies of water so impelled up meet in the *Runn*, should there be heavy rain to moisten it, and assist the winds (as afterwards explained), I look upon this conclusion to be obvious, that between Cutch and *Sinde*, at some period or other, there intervened an inland sea, which was navigable, and that there are circumstances in the present appearance and state of the country, which do not render it improbable that this inland sea was formed by an influx of water from the ocean consequent on some convulsion of nature.*

* See note O.

Presuming, therefore, that the *Runn* has once been a navigable sea, I shall now enter on its present state, which is neither that of a navigable sea, *nor one at all*. Its being denominated a marsh, has, in my opinion, given rise to many erroneous impressions concerning it. It has none of the characteristics of one; it is not covered or saturated with water but at certain periods; it has neither weeds nor grass in its bed, which, instead of being slimy, is hard, dry, and sandy, of such a consistency as never gives way, unless a long continuance of water on any individual spot have converted it into clay, which is rare, nor is it otherwise fenny or swampy. It is in reality but the dried-up bottom of an extensive inland sea, which, from having once been overwhelmed with water, more readily receives what flows into it from being lower than other parts of the country.

The grand *Runn* is that part which lies between *Sinde* and the islands of *Pacham* and *Carir*, the other parts being but ramifications of it; and the natives, in speaking of the navigable sea, have always that portion of it in view. The places which I have before described as its sea-ports in *Cutch*, *Chárl* and *Neroná*, are, it is to be observed, not on the main *Runn*, but on the narrow branch which separates it from the *Banní*. Those, on the other hand, situated on the *Banní* itself, as *Dórut Dóh*, *Plángwarro*, &c., I take to have been on the banks of the great *Runn*.

The *Banní* at present is not affected by the inroad of sea-water, but simply by rain, and never has, as far as I can judge and learn, formed any part of the *Runn*. In appearance it is a low humid tract, but nevertheless higher than the level of the *Runn*, and never flooded; indeed, many parts of it are inhabited even in the rainy season, there being a stripe of elevated land down the centre, which favours the tradition that prevails of its having had sea-ports. The existence of such a low tract near what I am trying to demonstrate has been inundated by the sea, may excite remark; but its protection from such an inroad of water, originated, no doubt, in its being removed at some distance from the course of the overflow of the waters, and situated to the south of what is actually their direction at present. It does not seem improbable, therefore, that the *Banní* has encroached on the *Runn* like a sand-bank in the ocean, and has extended itself to its present bulk. Rivers are known to be choaked up by an accumulation of sand, which will gather round any focus, such as the hull of a sunken vessel; and I conceive that the *Banní* may have had such an effect

in changing the *Runn* in its immediate vicinity from a navigable to a shallow sea. But the belt of *Runn* between the *Banní* and Cutch proves this in a great degree to be fact; for it is not, as other parts of the *Runn*, entirely of sand, but slightly overgrown with verdure, particularly between *Lúná* and *Narrá*, and which will no doubt change in time to *Banní*, and join on to Cutch. There are also no less than twelve rivers (small ones certainly), running into the belt of *Runn*, and it is to be supposed that they will deposit matter, and in time entirely fill up this portion of *Runn*.

These remarks only apply to a small part of the *Runn*. It is apparent, in all the southern coast of Cutch, that the sea has receded, and it seems to be generally acknowledged, that there is a depression of the level of the sea throughout the globe, though there are a few places, I am aware, in which this would not be true. In addition to this recession, which would also withdraw the sea from the *Runn*, it is to be observed that the *Indus*, *Luní*, and *Bannáss*, would deposit sand; and the monsoon winds, which blow up the water from the gulf and creek at *Lacpat*, would likewise accumulate matter, which in process of time would cause a redundancy of sand, and convert the *Runn* into something like a sand-bank. That the *Runn* is above the level of the sea at the present time is obvious, for it requires strong winds to flood it.

The saltness of the *Runn* is a subject not divested of difficulty. I conceive it to have originated, in the first place, from the influx of sea-water, and to be aided by the saline particles which the different rivers bring down into it. All the Cutch rivers flow from a chain of mountains, which give evident proofs of being in progress of decomposition; a state which at all times generates salt; most of these rivers, indeed, are salt water, and this is also the case with half the wells in the country. The very fact of their flowing in the direction which they do, northerly, into the *Runn*, proves that it must have been once an inland sea. Some African traveller has observed, that the water of all rivers running into an inland sea, without an outlet, is invariably salt; and the *Runn*, since winds only affect it, may in some degree be considered a lake. So salt is the *Runn*, that it is often encrusted with it an inch deep, the water having been evaporated by the sun, and I have even picked up lumps of salt as large as a man's fist, beautifully crystallized. The whole surrounding soil partakes so much of salt, that the wells which are dug to the level of the *Runn*, invariably yield salt

water, while nearer the surface fresh is procurable,—the remains of rain water, of course,—but even that in time becomes salt, the *Runn*, as it were, contaminating or corrupting it.

But there is one portion of the *Runn*, which does not present such inhospitable and salt features as I have been now describing: that portion of it at the mouth of the *Luní*, where the waters of the river are fresh, and the people cultivate grain with advantage; so soon, however, as this river reaches a little lower down, and mingles with the *Runn*, it is no longer accompanied by green and fertile fields, but dissipates its fatness in the dreary desert, and, saturating the *Runn*, renders it dangerous to travellers. The tract of *Saira* was no doubt of this description, and formed, on the other hand, by the alluvial deposit of the *Indus*, but which, as I have before shewn, has disappeared since 1762. It is a singular circumstance, that that portion of the *Runn*, which is the only part that has been well established to have been cultivated, should now be under salt water.

The *Runn* of Cutch is much more easily flooded when local rain has moistened it; and I have observed that strong winds, succeeding rain, invariably cover it deeply with water. When well saturated, it becomes like a sheet of blotting paper, and the water blown in upon it readily spreads on all sides, so that the rain, wind, and sea, equally contribute to flood it; and its dryness at one time, and shallowness at others, is easily accounted for, presenting, as has been shewn in the above line of argument, nothing at variance with hydrostatical principles:

That the natives of Cutch should attribute such a wonderful change in a part of their country to the influence of a man so holy in their estimation, as the *Pir*, or *Jógí*, of *Denódar*, seems to be by no means wonderful. The *Jógís* are a philanthropic, hospitable body of men, who are much respected in the country, and who allow no one of any persuasion to leave their door hungry. They are blessed with plenty, and like the monks of Europe formerly, become the depositaries of the history and traditions of the country. Accordingly, these people have the most detailed account of DHURAMANÁT'HA's deeds; and it may be this minute preservation of them by his followers which has given rise to the tradition, that these alterations of the *Runn* were brought about by the founder of the *Denódar Jógís*. A credulous people, like the natives of India, are ever ready to believe any tale, absurd as it may be, ushered in as the offspring of one of their gods or saints.

In proof of this, they have also a story, that the ancestors of the present RÁOS of Cutch were once a pennyless class of shepherds, who, coming from *Sámí* (Tatta) in Sinde, fed their flocks in Cutch, and, being patronised by the *Denódar Jógis*, were raised to be rulers of the country. Now the substance of this is true,—that the *Jhárejá* family of the RÁOS of Cutch *did* come from Tatta, in Sinde, and did tend herds of cattle in Cutch,—although they were certainly not raised to their present elevation by so peaceable a method as the simple intercession of a Hindú saint. Such, however, is the alteration which a story undergoes in the course of four hundred years.

The point most difficult to determine is the period at which these changes in the *Runn* took place. The *Denódar Jógis* are said to have been only coeval with the RÁOS of Cutch, and this would bring it down to so late a period as the fourteenth century, or, if we take the time the first *Jhárejús* came into the country, perhaps two hundred years sooner; yet the Muhammedans had sway over India even before this last period, and their historians are silent as to any great convulsion having taken place. ABUL FAZL, the author of the *A'yín Acbarí*, who wrote in the Emperor ACBAR's reign, which commenced but in 1556, makes Cutch so much more extensive in its dimensions than it really is, at whatever standard we take the *cós* that it might have been joined to Sinde in his time; but then he mentions that part of the *Runn*, which borders on Cáttýwár (*Jhálláwár*) as being famous for the salt it produced. Cutch was a country little known to the Muhammedan Emperors of Hindústán,* and ABUL FAZL may have derived the account which he gives of it from old archives in the possession of his master, or from reports which may have travelled down from the time of MAHMÚD of *Ghazní*, who first visited these parts about eight hundred years ago, and in whose time the countries may have been united,—but these are mere conjectures. There are several cities about *Abú*, and also in the western parts of *Málwa*, as mentioned at page 325 of the Second Appendix to Sir JOHN MALCOLM's "Memoir of Central India," which are stated to have been overwhelmed at a remote period by an earthquake. Some believe this event to have occurred only three hundred years ago, and the convulsion which overthrew them, may have affected the *Runn* of Cutch.

(Signed) ALEX. BURNES.

* See note P.

NOTES.

(A.) DR. VINCENT, who has written on the expedition of ALEXANDER the GREAT, believes that he extended his journey from the Indus into Cutch, which was the "*ultima Thule*" of the Greeks ; but the learned doctor does not appear to be borne out in this conjecture by any of the historians of antiquity. It is to be recollected, that it was not in accordance with ALEXANDER's own wishes to return from India, and that it was forced on him by the mutiny of his army on the Hyphasis, on account of the distance he was proceeding from their native country, which his oratory, pointed as it was, was unable to subdue ; so that, as the historian says, he commanded them to return. His memorable speech, on descending the Indus from *Páttálá* (the modern *Tatta*) to the sea, which took place before his assumed entry into Cutch, confirms the fact, that all his movements after that period were towards home, though they could not be called retrograde. He tells his soldiers "that they at last were come to the *end* of their toils, which they had so earnestly desired, and that nothing *now* could oppose their valour nor add to their glory,—that without fighting any *more*, or spilling of blood, they were masters of the universe,—that their exploits had the *same* boundaries with nature ;" and ROLLIN, who must be allowed to have attentively studied the text, says further, that "finding he had extended his conquests to the extremities of the earth *on that side*, he imagined he had completed his mighty design." How can it be reconciled, therefore, that ALEXANDER persisted in a three days' journey, with even part of his soldiers, after he had told them that they had reached the *end* of their toils, and their exploits were *now* bounded by nature, and that their conquests had reached the extremity of the earth, when every step he afterwards took would serve to belie his own oration, and to expose, for aught he knew, his troops to *new* fighting and spilling of blood?—for as Cutch is by nature a strong country, and the disposition of its people has been always considered warlike, the inhabitants were not likely to be less so, at that time, than their northern neighbours, the *Malli*, *Catheræ*, *Oxydracæ*, &c.

ALEXANDER, however, made a second voyage down the other branch of the Indus below *Páttálá* ; and though we have the names of the *Sindomanni* and *Páttáláns*, or the inhabitants of Upper and Lower Sinde, yet the natives of Cutch are not mentioned,—a very unlikely omission, considering that, if that country had been entered, it was the very termination of the expedition,—a circumstance, above all others, likely to add to its notoriety. But the professed object of ALEXANDER, in sailing down the eastern branch of the Indus, was to seek for bays and creeks on the sea-coast, and to explore which of the two branches of the Indus would afford the greatest facilities for the passage of his fleet, for ARRIAN says, "he had a vast ambition of sailing all through the sea from India to Persia, to prove that the Indian Gulf had a communication with the Persian." No allusion is made to the conqueror's desire to penetrate farther into India, and the historian goes on to state that "when near the mouth of the river he came to a lake formed either by the river spreading wide over a flat country, or by additional streams flowing in from the adjacent parts, and making it appear like a bay in the sea," and here it was

he left LEONATUS, and "sailed with some *biremes* to a creek which his pilots directed him to, and through which he sailed into the ocean, and found the passage much easier and safer than the other." From this circumstance he landed with a party of horse, and travelled three days along the coast to try if he could find bays or creeks to secure his fleet from storms, causing, as ARRIAN expressly says, "*wells to be dug to supply his navy with water.*" Surely, then, he must have travelled westward in the direction his fleet was to sail; or of what utility would wells dug to the eastward have been to his navy, or bays and creeks in that direction? ALEXANDER dreaded the dangers his fleet would have to encounter, but was not so ignorant of the direction in which they were to sail as to make such a mistake as to travel and dig wells to the eastward;—indeed, ARRIAN says, in the 21st chapter of his 6th Book, that when ALEXANDER had proceeded as far westward on his return as the river *Arabius*, he turned towards the ocean "*that he might cause more wells to be dug for his fleet,*" and caused "LEONATUS to tarry there till the fleet should sail round these coasts," from which second anxiety to secure water for his fleet it may be surely inferred, that his first journey along the coast, as well as his route home, were in one direction.

It has been surmised that ALEXANDER would have had a most difficult march through the delta of the Indus, which was the direction of this route; but it is stated that when he first resolved to sail down to the ocean, he sent LEONATUS, with a thousand horse and about eight thousand heavy and light-armed foot, *through* the island of *Páttálá*, "*that they might meet the fleet on the other side;*" and as LEONATUS encountered no difficulty in passing *through*, it is not likely that ALEXANDER would experience any. Besides, he had his vessels with him, and as his march would be along the beach he could easily transport his cavalry across any rivers which intervened.

To account for ALEXANDER's digging wells, Dr. VINCENT has stated, (upon what authority I am not aware), but erroneously, that that part of Cutch which ALEXANDER would pass through is a desert, and that our later travellers mention the wells which make it passable, and that it was the route of the caravans from Guzerat to the Indus. From personal observation and inspection of this tract, I have to state, that it is by far the richest part of Cutch, and, instead of being a desert, is highly cultivated and called the *Abrássa*; besides, it was never the route of the caravans to the Indus, which led through the little desert north of the *Runn* of Cutch by *Párcar*, where the wells Dr. VINCENT alludes to are to be found; and which he confuses with Cutch. That the above route has been always the frequented one between Guzerat and Sindé, must be obvious; for in selecting it the caravans avoided the *Runn* and the formidable mouths of the Indus, which, by pursuing the road through Cutch, they would encounter very low down, and find exceedingly difficult to cross.

But allowing ALEXANDER to have turned eastward, after passing down the eastern branch of the Indus below *Páttálá*, he would still be in Sindé, even if he marched three days eastward; for the *Lacpat* branch of the Indus has no communication with the others *but during the floods* of the Indus; and the grand *embouchure* for the waters of the most eastern of the two branches below Tatta is *Wányáni*, which lies between the

most western and *Lacpat* or eastern branch, and is in all probability the one through which ALEXANDER passed to the ocean the second time, and through which he intended his fleet to sail. The description given of this branch is quite characteristic of many of the mouths of the Indus, as being at its mouth like a "bay in the sea," for some of the rivers lose themselves in fens and swamps, sometimes forming lakes which communicate with the sea by small openings. I take it for granted that ALEXANDER never sailed down the *Pharrán* or *Córi* branch of the Indus, on which the preceding memoir treats; for it leaves the parent stream as high up as *Bhacar*, one hundred and seventy miles and upwards from the sea. It is not even mentioned by ARRIAN, and may be an excrescence from the main trunk of a later date than the days of the Greeks, and brought about, perhaps, like the inundation of November 1826, by the bursting of a *band*, such as *Arróre*. Nor has the *Lacpat* branch any resemblance to the one described by ARRIAN, for it widens greatly at its mouth, and has no small opening to the sea, and had ALEXANDER passed through the *Wányání* branch, he must have extended his voyage out to sea before he could reach Cutch; for the entrance to the two grand branches on which *Sháhbander* and *Bí* are situated, is not visible from Cutch, and I speak on this point from personal observation.

There is one other fact to which I shall allude before quitting this interesting subject. ARRIAN mentions a nation on the Indus, called "*Sangada* or *Saranga*," and D'ANVILLE has supposed the country of the *Sangada* to be the same as the modern "*Sangada*, or country of the *Sangarians*," whose modern capital, according to RENNELL, is *Noanagar*, on the south coast of the gulf of Cutch, and who, further coinciding with D'ANVILLE, conceives that the "*Sangarians* must have first removed from the western to the eastern side of the Indus, and afterwards must have also crossed the gulf of Cutch." In the province of Cutch, and about thirty miles eastward of the *Phurrán* river there is a town on the sea-coast, called *Jacow*, inhabited chiefly by a race of people, called *Sungars*, who have a well-founded tradition that they came from the west, and in ALEXANDER's time they were perhaps westward of the Indus, and the same people whom NEARCHUS mentions to have encountered the Macedonian hero on his road to *Gedrosia*, between the rivers *Indus* and *Arabius*.

That ALEXANDER's fleet never saw Cutch is clear, for it must have sailed out of the grand western branch of the Indus, and NEARCHUS' description of the harbour of *Crocala*, near the port of ALEXANDER, which he came to when only one hundred and fifty stadia from the place of his departure, agrees exactly, it has been said, with *Caráchí*. If the admiral had sailed out of the eastern branch, he must have passed along the whole delta, which would give an additional distance of eighteen hundred stadia, and this he never did; yet ALEXANDER's reason for sending his fleet by the branch which he had found the safest and best, is no where explained by ARRIAN.

The river Indus is so constantly subject to alterations, in particular towards the sea, that it must ever be fruitless to attempt the identification of any of its branches with what they appeared to the Greeks, unless in general features; and any one may, without fear of contradiction or comment, fix on the opening to the sea of any of its numerous

outlets, as the bay visited by ALEXANDER the GREAT, and from which he is said by some to have passed into Cutch.

Judging from ALEXANDER's love of glory, it may almost be believed that he had no desire to be acquainted with Cutch, since his ambition could not be gratified by entering where he knew his army would not follow ; and it is more than probable, therefore, that the Indus and the ocean were the boundaries of the Great ALEXANDER's conquests, and, as he wished his soldiers to believe, the boundaries of nature ; for since he could prosecute his expedition no farther, it was but in unison with the colossal altars and camp he had caused to be erected on the banks of the *Hyphasis*, as monuments of his glory, and the extent of his journey, that he should impress upon his followers, when about to return home, that they had reached the extremities of the earth, and were masters of the universe ; and that their leader had rivalled the feats of HERCULES and BACCHUS.

(B.) This conflict, so memorable in the annals of Cutch, was fought in the reign of RÁO GÓRE, at a small village of the name of *Jhárará*, which is situated about fifteen miles from Lacpat. I have heard various accounts of it from eye-witnesses, all of whom describe it as a dreadful scene of carnage. The Cutch people took their stand upon a rocky hill, and butchered their own families to prevent their falling into the hands of the Sindians. The victory was decisive on neither side : the whole *Jhárejá* chiefs of Cutch, and many mercenary troops, were collected together by the RÁO ; the Sindians drove them from their position, but gained no decided advantage, and returned almost immediately to Sind to throw up the *bands*. The revenue derived by government from the irrigated tract of land they thus destroyed was upwards of eight lacs of *córies*, or two lacs of *rúpís* annually. GHOLÁM SHÁH's objects in invading Cutch seem to have been to annex it to his dominions, and also to procure the sister of the RÁO in marriage, in neither of which was he successful. In his designs he was assisted by a disgraced minister, PÚNJA SET'H, a *Lóháná*, who was afterwards poisoned for his treachery.

(C.) BLACKSTONE describes this law " as a system of rules deducible by natural reason, and established by universal consent among the civilized inhabitants of the world," and says that " it is founded upon this principle, that different nations ought in time of peace to do one another all the good they can ; and in time of war as little harm as possible, without prejudice to their own real interests."—BLACK. *Com.*, book iv. p. 66.

(D.) There is a temple at *Cótásir*, built close on the water's edge, and is a place of some celebrity, at which a "*cháp*,"* or stamp, is burned on the arms of such pilgrims as

* A pair of these stamps are in the Museum of the Royal Asiatic Society, to which they were presented by Lieut.-Colonel JAMES TOD.

visit it ; but it is not allowable for any one to receive this honour who has not made a pilgrimage to *Hingláj*, a holy place on the coast of *Mecrán*, two hundred and fifty *cós* distant from *Cótásir* ; but this journey is generally confined to the tribe of *Goseins*. *Cótásir* is to Cutch what the temple of *Dwárca* is to *Cattywár*, but of less general note than that place, though it is considered necessary for Hindús to visit both before they are entitled to certain honours, from having made “ *tírat* ” to all the temples in Western India.

(E.) The coast of *Sinde* is distinctly visible from *Cótásir*, and a pagoda called *Ráo-Cánoje-ca-déra*, bears W.N.W., and is said to be nine miles distant. There is a camel-road from the interior of *Sinde* to a place called *Cardó*, across the river, and nearly due north of *Cótásir*, to which rice and other commodities are frequently brought down and shipped.

(F.) Great numbers of horses are annually brought down from these countries to Cutch. The merchants arrive with them about the beginning of December, and again return to their country about April. They are chiefly intended for the Madras cavalry, and are shipped at *Mandavie* for the Malabar coast. Where Arab horses are procurable, they are considered inferior from their thick, bull necks, and want of symmetry. Greyhounds, carpets, and fruit, such as apples, pears, grapes, apricots, &c., are regularly brought down by the same opportunity, and have a ready sale in Cutch. The dogs seldom live longer than a year, the country appearing to disagree with them.

(G.) The flies, or rather mosquitoes, are so numerous on this part of the *Runn*, that it is almost impossible to breathe without swallowing them ; though they do not bite, it is with difficulty a horse can be forced on through them. The moisture of the *Runn* generates these insects ; and in the monsoon, when the humidity is great in the *Banní*, the natives can hardly exist on account of them, and betake themselves to Cutch. I have always observed them most numerous when the soil is muddy and encrusted with salt.

(H.) “ *Sinde* is open to attack from India by way of *Multán*, *Guzerat*, and *Cutch* ; that by *Guzerat* passes by *Nagar Párcar*, crosses the *Rejestán*, whilst *Cutch* borders on *Sinde*, which may be entered either by crossing the river, or by sailing up the easternmost branch of the *Indus*.”—*Crow MSS.* A light division might be crossed at *Lacpat* to *Cótrí*, and proceed by *Lah*, *Vere*, *Himiut-Rarí Mírpur*, and *Banná*, to *Hyderábád* ; but for the first four marches water is very scarce, the country being little better than *Runn*. If we entered the country by *Párcar*, the route would lead through a desert of sand-hills, and the march would be very irksome ; but great part of this journey might be avoided by throwing the army into *Sinde*, by the route leading directly north of *Bhúj* across the *Pacham* island and *Runn* to *Bállyari*, which is open by December, and from thence striking north-westerly to *Hyderábád*, by the route of *Muhammed*

Khán ca tánda, which is seventy-seven *cós*, or, perhaps, two hundred miles from *Bállyari*. I have passed over this route.

Crow says, "The most eligible place for an equipment to land in Sindé during the north-east monsoon is *Guissary*, a place about ten miles to the south-east of *Curachee*, at the mouth of a creek opening from the sea. *Curachee* itself is a sea-port to the west of the Indus, and no vessels could batter it from the sea, for they are obliged to lie at a distance of at least three miles from it; but their guns could cover the landing of the troops abreast of the place of anchorage; vessels of a large draft of water could anchor outside of *Curachee*-bar, and at a moderate distance from the creek. The landing at *Guissary* is convenient enough at high tide for good-sized boats, and a couple of guns might keep the shore perfectly clear. The road to *Curachee* is level, from thence to *Tatta* plain and good for the transport of guns and stores, and in favourable seasons is covered with verdure. From *Tatta* to *Hydrábád* any expedition would be best conveyed by water, and could the country-boats be seized or secured they would be found best adapted for the purpose, being broad and flat-bottomed. From *Tatta*, however, an army might advance by land till it came opposite the island upon which *Hydrábád* stands, at about five or six miles from the shore; but this is liable to two objections, first, the badness of the road for one-third of the way; and, secondly, the difficulty of crossing the Indus, near *Hydrábád*, where the stream is three-quarters of a mile broad."

This intelligent gentleman, who resided for some time in Sindé, further says, that "to him the country appears easily subdued by a maritime power. Vessels could act in the Indus, and command its navigation, and gun-boats drawing six feet of water could act in the lesser streams." He is wrong, however, I think, in stating that "a detachment could be conveyed in country boats to *Ali bander*, and that a force by the Indus might be brought to act with the detachment by land;" for there is not a sufficiency of boats on the *Cori* or *Lacpat* branch to convey even a very small number of troops; but this river, as I have before shewn, has lately undergone much alteration, and is only navigable as high up as *Ali bander* at certain seasons. It would also be necessary to transport every kind of stores along with the detachment, while all this could be accomplished equally well, and one detachment second the other, by crossing the *Pachan* island, and marching from *Bállyari* to the Indus.

A pontoon train would come into play with great advantage on the Indus, but I question if the objects of the expedition could not be equally well accomplished with basket-boats and *kejeri* pots, used as they generally are in India.

(J.) The ruins of this city lie near *Saira*, and are of great antiquity. It was built by the *Chaorá Rájapúts*, who appear to have had sway over both the extremities of Cutch, previous to the Muhammedan invasion, and to have been coeval with the "*Sath Sánd*" tribe of *Rájapúts*, who ruled at *Guntrí*. I have not been able hitherto to ascertain any thing satisfactory on its history. Its walls are still to be traced, and are about two thousand yards in circumference. It would be a singular fact, if these ruins turned

out to be the remains of *Xylenopolis*, or the city of wood; and it is curious that the Hindústání word for wood, *lucrí*, should be nearly found in the name of the town of *Lacpat*. I put no faith, however, in this etymology, and merely give it as it has occurred to me.

(K.) Wheeled carriages are not used in Sindé, on account of the numerous rivers; and merchandize is exclusively transported on beasts of burden, and generally on camels. These animals, says CROW, "are bred in great numbers in the salt marshes of the *delta* of the Indus, and are very hardy and superior to those bred inland. They generally travel at night, and carry from five to six cwt. Mules, asses, and bullocks, are also used, and their number is not inconsiderable."—CROW'S MSS.

(L.) *Amercote* is known in the history of India as the retreat of the Emperor HUMÁIÚN, and the birth-place of his son, the great ACBAR. The riches of the *Amírs* of Sindé are now deposited there, they having at last secured it from the *Judpur Rájá*.

(M.) In Cutch there are two separate establishments of *Jógís*, one at the *Denódar* hills and the other at *Manfarrá*, in *Wágar*. They are called by the natives "*Cánp'hattis*" or slit-ears, from their cutting their ears to admit of large unseemly rings of ivory, bone, and sometimes agate, being suspended in them. Those at *Denódar* lead a life of celibacy, but their brethren in *Wágar* are not equally strict. It is among this class of people that the horrid practice of "*traga*," or sacrificing one of their number, generally an aged person, prevails. They resort to it when any oppression is committed on them, and cast the blame of the blood that has been shed, on those who have injured them.

(N.) About ten miles south of the *Runn*, and thirty-six W.N.W., of *Bhúj*, are the ruins of the city of *Gúntrí*, in the district of *Chitráno*. The walls are two thousand two hundred and fifty yards in circumference, and it is now entirely deserted. The traditions of the country state it to have been destroyed by the *Jhárcjás*. Old coins are often found here and at *Neróná*. They have the figure of an ass on them and are called "*Gadhia ca-paisa*." About sixteen miles south-east of *Guntri* there is another ruined city, called *Púragad*, believed to be nine hundred years old, and built by a nephew of LÁCÁPÚLÁNÍ, and to have had a curse imposed upon it at his death. There is a two-storied palace within its walls, which is a great curiosity, and in very good repair.

(O.) I was little aware when I stated this conclusion that I had such strong concurring testimony as that of the late Captain McMURDO, who in his Memoir of *Cáttywár*, so long since as 1815, had expressed a similar opinion, and as he wrote of a different part of the *Runn* from what I have described, or that bordering on *Cáttywár*, I look upon the following extract from his paper as a great additional argument in favour of the *Runn*'s being navigable:—

“ The *Runn* has every appearance of the sea having shortly withdrawn from it. This is supported by the semblance and production of the neighbouring country, and large stones are found on this shore several miles from the present *Runn*, of a description similar to those used as anchors: they have holes bored through for the cable. On the shore at different places are shown small ancient buildings, called *Dán Derís*, or houses where the *dán* or customs were collected, and, in short, it is a tradition in the country that *Khór*, a village two miles east of *Ticar*, was a sea-port town. About fifty years since the wreck of a vessel, of a size far beyond that of any of the craft now in use in the gulf of Cutch, was discovered at *Wawánia*, sunk in the mud about fifteen feet. The sea is gradually encroaching there, and has assumed the shape of a deep and narrow creek, which at low water is left dry. As the bank was carried away the wreck became exposed, and the timber was used in the village of *Wawánia* for fuel; there was no iron in the vessel, she was bound by cordage of coir. The circumstances would induce a belief that at some former period the gulf of Cutch penetrated very high up to the eastward, although it is a well-known fact, that it has been increasing for these last hundred years, during which period it has been much enlarged.”—Extract from MS. Memoir on *Cáttywár* by Lieutenant McMurdo, August 1815.

That the gulf of Cutch has been encroaching for the last hundred years I much question, if so, it certainly has not been upon Cutch itself, but towards the eastward; for in the memory of man, the width of the gulf has been contracted, as its waters, about fifty years ago, approached close upon the walls of *Mandavie*, and now the sea is three hundred yards distant, and recedes yearly. So much indeed has this been the course of events throughout, that about three miles above the present town of *Mandavie* the natives point out the remains of a town called by them “ *Old Mandavie* ” which is believed to have been a sea-port three hundred years since, and near which old coins are still frequently found; the fields about it are strewed with shells, all of which is against the opinion expressed of the sea encroaching. The creek which Captain McMurdo alludes to near *Wawánia-bander*, in which the wreck was laid open, might easily have been formed without a general approach of the gulf water, as the course of a rivulet, or the most trifling cause, would turn water which is blown up by the winds.

(P.) It is a singular fact that Cutch, which was included in the *Ahmedábád* division of the Moghul empire, was by a *fírman* of the Emperor JEHÁNGÍR, exempted from paying tribute, on the stipulation of transporting, free of expense, yearly, such pilgrims as should pass from the neighbouring provinces on their road to Mecca.